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APPENDIX A

PH TEST TO DETERMINE LIME REQUIREMENTS
FOR LIME STABILIZATION

A-1. Materials. Lime to be used for soil stabilization.

A-2. Apparatus.

a. PH meter (the pH meter must be equipped with an electrode having a pH range of 14).

b. 150-millilitre (or larger) plastic bottles with screw-top lids.

c. 50-millilitre plastic beakers.

d. Distilled water that is free of CO₂.

e. Balance.

f. Oven.

g. Moisture cans.

A-3. Procedure.

a. Standardize the pH meter with a buffer solution having a pH of 12.45.

b. Weigh to the nearest 0.01 gram representative samples of air-dried soil, passing the No. 40 sieve and equal to 20.0 grams of oven-dried soil.

c. Pour the soil samples into 150-millilitre plastic bottles with screw-top lids.

d. Add varying percentages of lime, weighted to the nearest 0.01 gram, to the soils. (Lime percentages of 0, 2, 3, 4, 5, 6, 8, and 10, based on the dry soil weight, may be used.)

e. Thoroughly mix soil and dry lime.

f. Add 100 millilitres of distilled water that is CO₂-free to the soil-lime mixtures.

g. Shake the soil-lime and water for a minimum of 30 seconds or until there is no evidence of dry material on the bottom of the bottle.

h. Shake the bottles for 30 seconds every 10 minutes.

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i. After 1 hour, transfer part of the slurry to a plastic beaker and measure the pH.

j. Record the pH for each of the soil-lime mixtures. The lowest percent of lime giving a pH of 12.40 is the percent required to stabilize the soil. If the pH does not reach 12.40, the minimum lime content giving the highest pH is required to stabilize the soil.